

The Emotional Experience Design of Zhuang Brocade Cultural and Creative Products Based on the Technology Affordability

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Abstract: Based on Norman's emotional design theory, explore dynamic design theory in traditional cultural and creative product design from the perspective of technology affordability. Study the user's moving innovation design strategy for innovative products in modern contexts. Based on the three-level theory of emotion, summarise the existing design cases of cultural and creative products, analyse the supporting role of contemporary technology for inspirational design from the perspective of affordability and guide the creation of Zhuang Brocade handicraft innovative cultural products with affordance-assisted emotional design theory. The elements are translated in modern times to construct an emotional experience design framework in a contemporary context, supplemented by the perspective of affordability, and use the framework to design a set of Zhuang Brocade cultural and creative products for Zhuang Brocade craft experience. The design framework can effectively analyze the user emotional design elements in traditional handicraft artistic and innovative products and explain the support of current technological affordances for inspirational design.

Keywords: Emotional Design, Traditional Culture, Cultural Creative Product, User Experience, Technology Affordability

1. Introduction

Relying on the essential attributes of intangible cultural heritage, intangible cultural heritage products express their cultural connotations and extend their extension through product design methods. Handicraft artistic and creative products refer to artistic and innovative developments in the intangible cultural heritage that expresses traditional handicraft skills. In 2021, the State Council issued the "Opinions on Further Strengthening the Protection of Intangible Cultural Heritage"[1], emphasizing that in the design and secondary development of intangible cultural heritage, it is necessary to combine the background of the times to design cultural products that can be integrated into modern life, and at the same time. Preserve cultural connotations, prevent excessive commercialization, and enhance public awareness and cultural identity of intangible cultural heritage. Therefore, as one of the contents of the secondary development and design of intangible cultural heritage culture, handicraft artistic and creative products are created to arouse more emotional resonance among users. Nowadays, the research on handicraft artistic and innovative product design

aligns with modern theory and technology. The integration characteristics still lack a particular approach to guide the emotional experience that the product brings to the user by sorting out the previous research on the design strategy of handicraft cultural and creative products, analyzing the existing practical cases of artistic and creative Innova products, and exploring the design method of handicraft cultural and creative products based on the classic emotional design theory from the perspective of affordability, to meet the needs of the era and stimulate the traditional vigorous vitality of handicraft culture.

2. Theoretical explanation and analysis

Affordability is a descriptive concept first proposed by Gibson in "The Ecological Approach to Visual Perception"[2] in 1979 to explain the correspondence between living things and the environment and was introduced into the field of design by Norman in 1988 and extended to perceived affordances to describe the perceived emotional attributes of items. Technology availability refers to the degree of support for theoretical practice under the development of modern technology, emphasizing the support of the help of digital technologies such as 3D printing, virtual reality, and augmented reality. The introduction of the concept of affordance breaks the gap between the design object and the user and establishes an experience connection that checks and balances each other [3].

Emotional design is a theory of cognitive and affective systems proposed by Donald Norman in "Emotional Design" [4] in 2003, dividing emotional experience into three levels: instinct, behavior, and reflection. It focuses on the user's psychological feelings in product design, and the purpose is to make users feel satisfied and happy in the process of using the product.

The instinctive layer focuses on the most direct sensory experience of the user itself, such as vision, hearing and touch. The sense of adventure it brings is much earlier than the experience brought to users by behavioral awareness. On the instinct level, the design of cultural and creative products should focus on the three most direct physical aspects of design, patterns, colors, and the selection of raw materials, to bring a strong first impression.

The behavior layer focuses on the interactive behavior process between the user and the product. Its primary design objects are the user-operable parts such as the function and structure of the product. The design purpose at the behavior level is mainly to complete the operation experience of the product more efficiently and interestingly, under the premise of satisfying the practical functions of the product. Design and functional experience should give users a sense of "surprise" or "satisfaction" so that the user experience process can smoothly enter the final emotional awareness layer.

Compared with the above two layers, the design of the reflection layer is more subjective. Its invention cannot be limited to the product itself. Still, it can also create a specific mood or story through the peripheral environment of the product to evoke the deep emotions of users and feelings and ultimately establish a link between users and product developments in the spiritual or cultural field. Designers design traditional handicraft artistic and creative effects on the reflective level; in addition to the spiritual and cultural core behind traditional handicrafts, they should also pay attention to giving them new cultural connotations and cultural interpretations in the new era in the modern context to give them new cultural meanings. It brings users a richer spiritual and emotional experience

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by integrating the old and the new integrating the old and the contemporary brings users a richer spiritual and emotional experience.

Users perform behavioral operations in the instinctive layer of product design. The behavioral layer relies on the intuitive layer to bring users a continuous functional operation experience. The sensory experience and behavioral experience brought by the integration of the first two layers are integrated and upgraded in the reflection layer to obtain output from user emotions so that users can obtain a complete emotional experience journey during the product experience process. The mapping relationship between dynamic design theory and product design elements, as shown in Table 1.

With the development of modern science and technology, the emergence of emerging multimedia technologies such as virtual reality and augmented reality has dramatically improved the sensory experience and interaction level brought dramatically-products, but the high-level visual presentation and behavioral operations have been sublimated to users themselves. The research on emotional output is still lacking. The balanced relationship and explanation between technology and people provided by the perspective of technology affordability can effectively measure the experience improvement brought by emerging technologies. Combined with the emotional level theory to analyze the progress of emotional perception given by technology affordability, it will eventually be due to the sensory and other experiences brought about by the increased availability of technology are sublimated to emotional satisfaction [5].

Table 1 The relationship between emotional design theory and product design elements

Subject emotion level	Product image	Related Design Elements
Instinct layer	Appearance representation	Color Ornament Appearance Material texture
Behavioral layer	Functional experience	Product structure Application function Interactive mode
Reflection layer	Emotional resonance patch length	Style definition Cultural interpretation

3. Research status of handicraft cultural and creative products

The innovation of handicraft cultural and creative products refers to the innovative design of cultural and creative products based on traditional handicraft skills, or around the handicraft itself, or by modernizing its handicraft products, retaining its unique artistic style and spiritual connotation. As an intangible culture, handicraft has a long history. The inner driving force for its development and continuation is the artistic practice carried out by traditional artisans' persistence in perfecting

handicraft skills. The transformation of society and production is a way to inject new impetus into the survival of national cultural heritage [6].

3.1 Overview of research on handicraft experience design

In 2016, the State Administration of Cultural Heritage issued "Several Opinions on Promoting the Development of Cultural and Creative Products in Cultural Heritage Units"[7], leading universities and related cultural institutions to actively develop and innovate cultural resources and design cultural and creative products. The "Chinese Traditional Craft Revitalization Plan" issued by the State Council [8] has enabled researchers to continue paying attention to traditional handicrafts research and exploration.

Zhang Yue etc. [9, 11] starts with the development status of cultural and creative products and discusses the design strategies of traditional handicraft artistic and innovative products in combination with the characteristics of traditional Chinese handicrafts. Yang Yue [12] is based on the survival dilemma of Chongqing's traditional handicraft Liang Pinglan calico and summarizes the product innovation paths of expanding patterns, shaping regional images, and increasing cross-border cooperation. Huang Qian etc. [10,13] compared and combed birch bark and other leather goods handicraft cultural and creative product and explored the expression path of "traditional craftsmanship" products characterized by the spiritual connotation of birch bark craftsmanship. Wang Yaming [14], based on the definition and characteristics of cultural and creative products, discusses the key design points of bamboo weaving cultural and creative products in enhancing cultural sense, functionality, and market effects. Mengen [15] is based on the technological characteristics of Huayao cross-cutting, and based on the core principles of cultural, regional, innovative, and practical cultural and creative products, and proposes directly quoted, simplified, deconstructed, and reorganized. design methods. Yingying [16]summarises the handicraft characteristics and specific applications in cultural and creative products taking traditional paper carvings as an example and discussing the design and development strategies of modern artistic and innovative products.

Handicraft cultural and creative products are based on the inheritance and innovation of traditional handicrafts and are committed to promoting and popularizing traditional handicrafts. The research and design of handicraft cultural and creative products in China mainly draws design strategies by summarizing the practical experience. Still, in the design research process, most of them focus on the specific cultural characteristics and environment of traditional handicrafts themselves, lacking a unified theoretical design framework.

3.2 A case study of handicraft experience design from the perspective of technological affordance

Based on the analysis of the actual cases of current intangible cultural heritage handicraft cultural and creative products, based on different technology integration points, the innovative design categories of artistic and creative products are divided into three categories: pattern features, raw materials and materials, and technological processes, and from a three-level perspective of user needs

Summarize the differences in user emotional experience levels brought about by existing product designs.

3.2.1 Characteristics of patterns

In the spring and summer haute couture clothing series centered on "bamboo" in 2015, Armani designers deconstructed traditional Chinese bamboo art. They used the freehand style of ink bamboo in Chinese painting to design clothing patterns, highlighting the unique literati of the series. Temperament. Tongji Artificial Intelligence Laboratory generates an exclusive Jinshan peasant-style painting in one second from the simple strokes drawn by the audience. By deconstructing and learning Jinshan peasant painting, the basic styles and elements of Jinshan peasant painting are refined, and the traditional handicraft learning method is passively accepted. It is transformed into active creation, and the audience is more involved in the product experience through virtual display screens or devices.

In the innovative design of cultural and creative products, patterns are the basis and main form of the external expression of cultural elements and are also one of the design elements of the instinctual layer and are the key part of innovative design. Designers use new technologies such as deep learning, style transfer and intelligent generation to extract design elements of patterns, and continue to dismantle and reorganize them, to realize the innovative design of patterns and support the most direct user sensory and emotional experience.

3.2.2 Innovation of technological process

Yang Lijie and others presented a Chinese ink painting in a dynamic way by simulating the denseness of ink through a particle [17], making people change from passive acceptance to active creation. At the 2020 International Future Life Expo, modern digital technology is used to realize the transformation from "intangible" to "tangible" intangible cultural heritage items, and the practical principles of silk reeling and weaving are expressed in a modern interactive game experience through multimedia media. This refinement of pattern elements and the essential restoration of its technological process by means of 3D virtual imaging and intelligent bionic motion has opened a new path for the development of traditional culture. The T-master master pot provides users with a personalized intelligent tea brewing service and guides users to brew professional-grade tea according to the steps. Tangrenfang's "Tang Doll" puppet culture and creation integrates multiple traditional handicraft methods, replacing traditional embroidery technology with modern heat transfer technology while retaining the classic hair combing method in the production process and the filigree weaving of headwear and other processes to improve product efficiency. At the same time, it retains the cultural characteristics of the product to the greatest extent, and the product display, as shown in Figure 1. Deng Shiwei[18] and others used the APP as an experimental site to carry out the design practice of Meishan paper-cutting digital cultural and creative products through the online "paper-cutting MOOC" and "Meishan paper-cutting game" and created a new kind of paper-cutting through narrative and co-creation customization. cultural experience.

The innovation of technological processes in handicraft cultural and creative products is mainly realized through the integration of modern technology and traditional skills. An innovative design,

it is often concerned with the process flow of traditional handicrafts and the modern expression of the functions of traditional handicraft products. Designers often borrow modern tools and theoretical methods to simplify the production steps of products, improve product performance and add new functions or structural designs. With the help of intelligent modern technology engines such as artificial intelligence and 3D printing, they can bring more simplicity and diversity to traditional handicrafts. It integrates modern technology and life elements into handicraft products, attracting more people to pay attention to intangible cultural heritage.



Figure 1 Stylegan particle ink painting. T-master Master Kettle. Dunhuang series "Tang Doll"

3.2.3 Experimental exploration of new materials

Yuxian uses traditional handicrafts such as patching, lamination, and tipping to transform the corner fabrics and collage them into owl cloth pads, thus enriching the design expression and product connotation of its traditional cloth pad skills. The designer combines bamboo weaving with other materials and processes, such as the splicing and fusion of bamboo weaving and ceramics, using the accommodating and compact shape of ceramics as the bottom container, and using the permeability of bamboo weaving as the container cover. The combination with the fabric produces a more malleable bag, produces practical products with different attributes, and broadens the application scenarios of bamboo weaving. A 3D printed cheongsam made using new technologies such as 3D printing. Through intelligent technology to simulate the movement of the fabric, the intelligent fabric material and algorithm are applied to the dragon and phoenix cheongsam to depict the cheongsam that can show the dynamic scenery of the four seasons and realize the interaction of wearing. The product display is shown in Figure 2.



Figure 2 Owl Collage Pad. Ceramic Bamboo Ornament. Four Seasons Dynamic Cheongsam.

The experimental exploration of new materials is an important means for the “makeover” of the handicraft cultural and creative products. Qualitative reconstruction improves some attributes of the product, thereby injecting modern elements and enriching the product variety.

Table 2 Sentiment Hierarchy Analysis from the Perspective of Technology Affordability

Demo	Ornament	Appearance	Texture	Application	Interactive	Style	Cultural
Armani “Bamboo” Collection	Style transfer						Style transfer Style generation
One-click generation of Jinshan peasant style paintings	Style transfer	Augmented Reality	Essential reduction		virtual space Digital customization	Twin numbers	
T-master Master Kettle			Heterogeneous reconstruction	Smart Chip	Smart Voice		Smart Chip
Tang doll cultural and creative products			Heterogeneous reconstruction				
Silk weaving interactive game	Style transfer			Simulation game		Digital Simplify	Smart Voice
Stylegan particle ink painting	Style transfer	Digital Display					Smart Voice
Meishan Paper Cutting Game	Style transfer		Essential reduction		Digital customization		
3D printed cheongsam			Heterogeneous reconstruction				
Four Seasons Dynamic Cheongsam	Smart fabric dynamic display		Heterogeneous reconstruction				Dynamic Digital Technology
Ceramic Bamboo Patchwork Pad	Style transfer	Element deconstruction	Heterogeneous reconstruction				

The results of emotional level analysis of handicraft cultural and creative product design cases, as shown in Table 2. In the process of cultural and creative product design, designers mainly explore the technical support of modern technology for cultural and creative products, but most of them only focus on one of the three levels. For the complete user emotional experience design, there is still a lack of a systematic theoretical framework for complete innovative design, which leads to the failure of some designs or high thresholds to be popularized, or the degree of innovation is not enough, which leads to the proliferation of homogeneity. This study cuts in the design of cultural and creative products from the perspective of three levels of emotion in the design, divide the design elements of handicraft products and analyzes the design touchpoints of each level of elements. Design handicraft cultural and creative products from point and surface, to lowers the threshold of handicraft culture through appropriate guidance and enhance users' empathy for cultural and creative products [19~20].

4. Redesign of emotional Zhuang Brocade Loom experience based on technology availability

Due to the cumbersome brocade craftsmanship of traditional Zhuang brocade and the loss of talents from the main inheritance areas, it is currently facing the dilemma of losing the handicrafts. To popularize the handicraft of Zhuang Brocade and attract more young people to learn and inherit the craftsmanship, we designed a teaching aid for Zhuang Brocade's cultural and creative products for children, giving it educational significance and dissemination value [21]. The Zhuang brocade artistic and innovative products for children aim at the technical and artistic output of Zhuang brocade handicrafts, supplemented by the three-level analysis method design and research, and modernize the formal logic of the creative subject to achieve the effect of popularizing the Zhuang brocade weaving craft.

4.1 Extraction of design elements of Zhuang Brocade

Zhuang brocade handicraft is one of the representatives of the unique national culture, and it is also the foundation of the Zhuang nationality's unique clothing culture. The characteristic of Zhuang brocade is that it is made of cotton yarn as the warp, and various coloured silk threads are used to make flowers in the "bamboo cage machine" flower cage as the weft. Passing through the warp and breaking the weft is skillfully interwoven [22]. The main steps of a complete Zhuang brocade include cotton yarn treatment before brocade, pattern design, warp carding on the machine, yarn splitting and Split yarn and reed, warp and weft breaking, jacquard pattern and finished product treatment. The fabrics woven with Zhuang brocade handicraft are solid and durable, with rich and colorful patterns designs and the beautiful expectations of the Zhuang people for life, with unique regional culture.

Before weaving brocade, we need pattern design and drafting and research on the patterns of Guangxi Zhuang brocade. The Zhuang people have them, and green are mostly used as the colours of the basic colour, and complementary colours are used for strong contrast. At the same time, combined with the patterns, they are endowed with divine and abstract geometric patterns and the implication

of natural things, such as the Fangsheng pattern, Huizi pattern, butterfly love, flowers etc. [23]. After collecting the pattern information of Zhuang brocade, the style transfer model in the machine learning algorithm is used to learn the Zhuang brocade pattern. To a certain extent, the real object pictures are converted into the style output of the Zhuang brocade pattern to expand the Zhuang brocade loom [24].

4.2 Zhuang Brocade Loom experience process based on technology availability

The brocade machine takes the most traditional value "Binyang Bamboo Cage Machine" as an example, named after the running core "Bamboo Cage" suspended above. The prototype structure of the Zhuang Brocade loom is cumbersome and fragmented. The length of the machine is 173 cm, and the height of the frame is 109 cm. It is divided into four parts: support, transmission, split healed and jacquard device [25]. As shown in Figure 7. In the product design, the functions are integrated and reorganized in the support panel system, and the modules are combined through the tenon-and-mortise structure.

Based on the structural transformation of the Zhuang Brocade loom, the Zhuang Brocade Experience Cultural and Creative Products are mainly analyzed from the perspective of technical affordability. They are developed around the weaving experience [26], divided into design patterns, loom assembly, winding preparation, thread lifting and splitting, cross-stitching. There are five steps in brocade. The translation framework of Zhuang brocade skills is shown in Figure 3.

The first step to designing the pattern is based on the design pattern draft of the supporting APP of Zhuang Brocade Loom Products. By the rise of artificial intelligence technology, the intelligent design engine makes it possible for the machine to design the pattern draft automatically. After processing the information obtained manually in the early stage, the platform uses the style transfer method to convert the drawn patterns into patterns with Zhuang brocade pattern colours and geometrical features.

In the second step of loom assembly, the parts are assembled into the riveting holes of the triangular support plate. The combination of the parts integrates the traditional Chinese tenon-and-mortise structure. The tenon-and-mortise technology fixes the disassembled modules of the structure, thereby recombining the various functions on the supporting panel.

The third step of winding is to wind the cotton yarn on the fixing piles of the support plate. This process restores the traditional "combing on the massage" measure; the warp is fixed on the support panel. In this step, due to the conventional sense of ritual of the winding action, in the design process, the essence of the process is restored so that users can feel the rhythm and meticulousness of the brocade while participating in the use of time.

The fourth step of thread lifting is a characteristic step in the process of Zhuang Brocade loom. In the original loom, the step was to wrap the warp threads in the "bamboo cage" according to the pattern design to complete the stylized upper and lower heddles. In the design process, the characteristic function of its "bamboo cage" was retained, simplified, and improved, and the "bamboo cage" module was added to the structure supporting the warp in the traditional structure, and the internal periodic crimping structure of different modules was used to realize the function. In the process, the warp changes of each row can be analyzed, and the appropriate module combination can be selected to achieve similar functions.

The fifth step: cross-stitch brocade is more common in the general brocade process. To improve the usability of users and reduce the threshold of use, there will be no overly complicated patterns in the design patterns. Therefore, the common shuttle design in the market is adopted in the technology, and the actual size is reduced year on year. The Zhuang Brocade shuttle used is used as an accessory to guide the threading, and after each row of the shuttle, the rotating shaft rotates 90 degrees to separate the unused warp threads. The use demonstration process of the fourth and fifth steps is shown in Figure 4. Users experience the dynamic changes of weaving during the participation process, which is logical and interesting. The content of Zhuang Brocade’s cultural and creative design is based on emotional affordances, shown in Table 3.

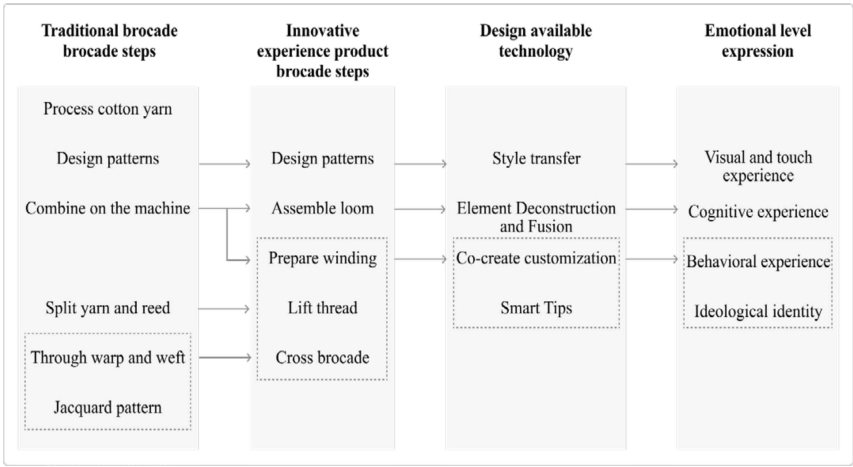


Figure 3 Zhuang Brocade skills translation framework

Table 3 The content of Zhuang Brocade cultural and creative design based on emotional affordance

Emotion layer	Content	Technology	Element	Experience
Instinct Layer	Patterns decorate	Style transform	Image	Vision Experience Touch Experience
	Patter color	Nature reduction	Color	
	Model	Element destructor	Model	
	Craft	Heterogeneous reconstruction	Material	
Behavior Layer	Tenon frame	Element restructuring	Product Structure	Recognition Experience
	Component	Multi-structural fusion		
	Pattern design (APP)	Heterogeneous reconstruction	Application function	Behavior Experience
	Brocade machine			
	Image game	Co-create customization	Interactive mode	
	Weaving experience			

	Pattern generation	Style transform	Style definition	Emotion Recognition
	Texture touch	Nature reduction		
	Assembling of tenon structure			
Reflect	Zhuang brocade	Smart Tips	Cultural	Cultural Recognition
Layer	weaving process		interpretation	
	Logic Color Block			
	Game	Narrative design	Emotion Identify	Ideological Identity
	Beautiful culture legend			

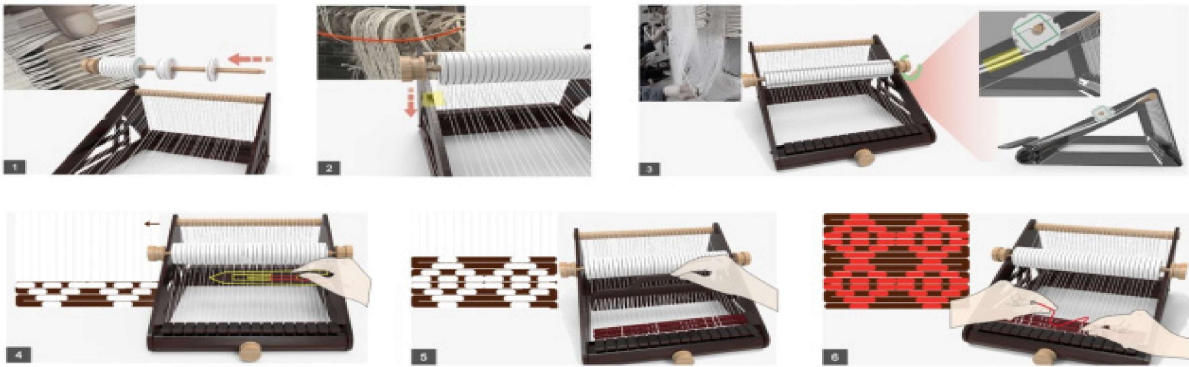


Figure 4 The weaving experience process of Zhuang Brocade Cultural and Creative

4.3 APP platform innovation based on pattern design

The Zhuang Brocade APP platform is divided into three functions: knowing Zhuang Brocade looms, talented designers, and pixel painting games. It mainly provides the function of recognizing Zhuang brocade and designing patterns before weaving. "Understanding Zhuang Brocade Loom," tells beautiful stories and legends such as "The Origin of Zhuang Brocade" in a narrative design, introduces traditional brocade looms and appreciates patterns, and feels the influence of culture. At the same time, learn the structure of the loom, the function of each module and the assembly steps. The "genius designer" is used to design the pattern draft. The colour range of Zhuang brocade is selected from several specific red, yellow, blue, green, and other colours. After drawing the ideal pattern, the pattern pixel painting is disassembled in the background and integrated with the elements of traditional Zhuang brocade pattern elements. Perform style transfer, and the pattern is transformed into several Zhuang brocade-style patterns for users. The principle of Zhuang brocade pattern translation is shown in Figure 5. From the perspective of the composition of Zhuang brocade, the weaving of the pattern will be limited by the warp and weft and will form a unique geometric polyline shape, which is similar to the mosaic effect. Therefore, a pixel painting game, which is also a mosaic element, is added to the design, and the Zhuang brocade pattern colour blocks are identified by the 16x16 grid division. The rules of this game are similar to horse racing games, and the numbers on the coordinates represent the colour block combination in the row or column. According to the regular characteristics of the

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numbers, find the combination of colour blocks and then fill in the colour. While playing games, users deepen their familiarity with patterns and exercise their logical and mathematical abilities. During the weaving experience, the pattern is distinguished by colour blocks to guide the user to experience the thread lifting. For example, the brown part is the upper weft, and the red part is the weft to be pressed below. At the same time, felt the unique pattern and culture of Zhuang Brocade. The functional structure diagram and prototype diagram of the Zhuang Brocade APP platform are shown in Figure 6.



Figure 5 The principle of translation of Zhuang brocade patterns

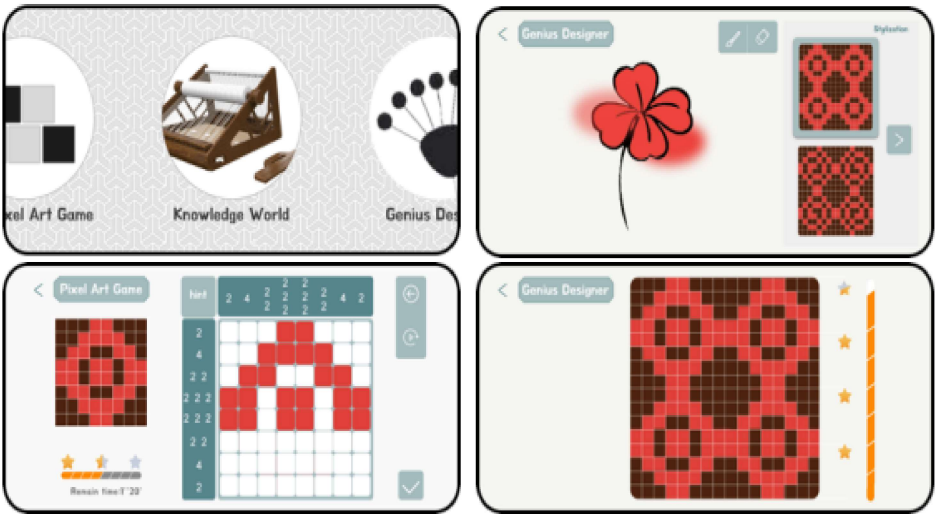
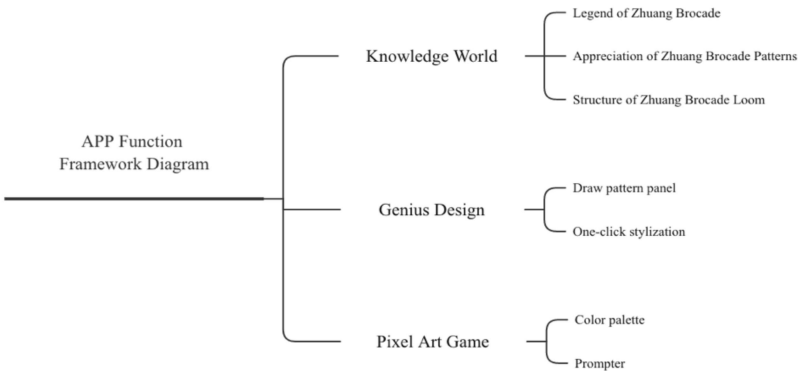


Figure 6 Functional structure diagram and prototype diagram of Zhuang Brocade supporting APP

4.4 Loom product innovation based on cultural translation

In designing the experience of the traditional Zhuang brocade loom to adapt to the fast-paced and simple style of modern society, the functions of the traditional "bamboo cage machine" were disassembled and integrated into a triangular support panel to provide support. It has the function of fixing the winding and opening several riveting holes in the support panel to make it have the functions of setting functional parts and adjustment, thereby reducing the overall space volume of the Zhuang brocade teaching aids and simplifying the structure of the loom; The wire take-up and winding function is converted into a rotary table pressing device to achieve a similar effect. The rotating shaft pressing is mainly composed of an assemble able pressing wire. The pressing contains a small electronic transceiver to communicate with the control board, realize the user's barrier-free assembly, and reduce the learning cost. The tablet contains irregular patterns, which are changed from horizontal thread take-up to vertical thread pressure and follow the rotation of the rotating shaft to realize stylized warp and weft control and weaving repeating patterns. The module assembly sequence is automatically calculated according to the Zhuang brocade pattern generated by the user, and the Arduino lighting component integrated on the loom guides the user to perform correct weaving. Feel the collision of the past and technology. The Zhuang brocade cultural and creative loom is shown in Figure 8, the packaging display is shown in Figure 9.

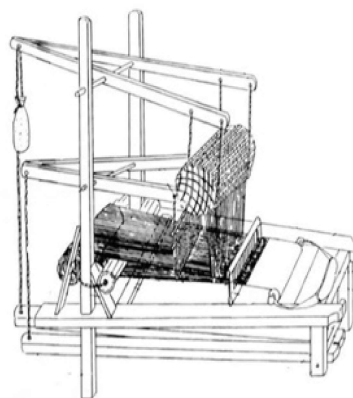


Figure 7 Structure diagram of Guangxi Binyang bamboo cage machine

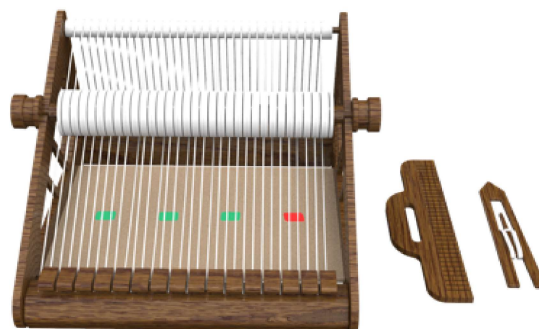


Figure 8 Zhuang Brocade Cultural and Creative Loom



Figure 9 Zhuang Brocade Cultural and Creative Loom Packaging Display

5. Conclusion

By analyzing the relevant theoretical research on handicraft cultural and creative products at this stage, this paper finds that there is a lack of unified design academic framework guidance for the design and application of modern technology in the design and application of cultural and creative products, and it is not easy to form a complete user emotional experience. Some practical cases of handicraft cultural and creative products analyze their design elements and design methods integrated with modern technology. Take Zhuang Brocade's artistic and innovative product design as an example by selecting the external representation. Invisible characteristics of Zhuang Brocade looms in emotional theory Image elements, mining, and intelligent technology integration contacts, to design a set of Zhuang brocade threaten cultural and creative products with widespread education significance, which lowers the entry threshold and difficulty of Zhuang brocade culture and integrates the national characteristics of Zhuang brocade elements into daily life. The integration of the life scenes has expanded the user group of Zhuang Brocade's traditional handicrafts. Its design has guiding significance for the inheritance and innovation of intangible cultural handicrafts that are difficult to restore or complex.

Under the background of rapid economic development and artificial intelligence, the organic integration of intangible cultural heritage culture into modern life requires good innovation of intangible cultural heritage in line with the requirements of the times, to realize its intelligence and rational commercialization has a solid material foundation. In the future, In the design exploration of traditional handicrafts and the modern environment, the investigation and guidance of design theory for integrating conventional handicrafts and the contemporary atmosphere is still an important topic.

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